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NATIONAL COMMUNICATIONS FROM PARTIES NOT INCLUDED IN ANNEX I TO THE CONVENTION

REVISION OF THE GUIDELINES FOR THE PREPARATION OF NATIONAL COMMUNICATIONS FROM PARTIES NOT INCLUDED IN ANNEX I TO THE CONVENTION

Proposed improved guidelines for national communications from Parties not included in Annex I to the Convention

Text by the Chair

I. INTRODUCTION

A. Objectives

1 Taking into account Article 4, paragraphs 1 and 7, of the Convention, the principal objectives of the guidelines for the preparation of national communications from Parties not included in Annex I to the Convention (non-Annex I Parties) shall be:

(a) To assist non-Annex I Parties in meeting their commitments under Article 4, paragraph 1, and Article 12, paragraph 1, of the Convention, as well as under other relevant decisions of the Conference of the Parties (COP);

(b) To encourage the presentation of information in a consistent, transparent and comparable, as well as flexible manner, taking into account specific national circumstances;

(c) To facilitate the presentation of information on support required for the preparation and improvement of elements in national communications from non-Annex I Parties, as outlined in these guidelines;

(d) To serve as policy guidance to the operating entity of the financial mechanism for the timely provision of financial support needed by developing country Parties in order to meet the agreed full costs of complying with their obligations under Article 12, paragraph 1, as referred to in decisions 11/CP.2, 2/CP.4, 2/CP.7 and 6/CP.7;

(e) To facilitate the process of compilation and consideration of the communications, including the preparation of compilation and synthesis reports in accordance with the relevant decisions of the COP;

(f) To ensure that the COP has sufficient information to carry out its responsibility for assessing the overall aggregated effects of steps taken by the Parties towards the implementation of the Convention, as referred to in Article 10 of the Convention.

B. Scope

2. The guidelines cover the reporting of information on, inter alia, national circumstances; the integration of climate change concerns into sustainable development programmes; the estimation of national greenhouse gas (GHG) inventories; programmes containing measures to facilitate adequate adaptation to climate change; programmes containing measures to mitigate climate change, the development and transfer of technologies; research and systematic observation; education, training and public awareness; information and networking; capacity-building, constraints and gaps, and related financial, technical and capacity needs.

3 Parties are encouraged to include any other information they consider to be relevant to the achievement of the objective of the Convention and suitable for inclusion in their national communications, including, if feasible, material relevant to calculations of global emission trends.

II. NATIONAL CIRCUMSTANCES

4. Parties should provide a description of their national and regional development objectives and priorities, including information on features of their geography, climate and economy which may affect their ability to mitigate and adapt to climate change, as well as information regarding their specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as contained in Article 4, paragraphs 8, 9 and 10, of the Convention

5. Parties should use, as appropriate, the following headings to describe their national circumstances: geographic profile, climatic profile, population profile, economic profile, energy, transport, industry, mining, tourism, waste, agriculture and fisheries, forest, land use, health, environment, education and research institutions, and other circumstances.

6. Parties are encouraged to provide a summary of information regarding their national circumstances, as appropriate, in tabular form.

7. Parties should provide a description of existing institutional arrangements relevant to the preparation of their national communications on a continuous basis, as well as a list of perceived deficiencies in this area.

III. INFORMATION RELATING TO THE INTEGRATION OF CLIMATE CHANGE CONCERNS INTO SUSTAINABLE DEVELOPMENT PROGRAMMES

8. With a view to facilitating the formulation and implementation of sustainable development programmes, Parties are encouraged, as appropriate, to provide information on national and/or sectoral programmes which they have planned or implemented addressing climate change issues.

IV. NATIONAL GREENHOUSE GAS INVENTORY INFORMATION

9. Each Party shall, in accordance with Article 4, paragraph 1(a), and Article 12, paragraph 1(a), develop, periodically update and communicate to the COP information on anthropogenic emissions by

sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, following the provisions in these guidelines.

A. Inventory years

10 Each Party shall estimate and report national GHG inventories for the year 1994 and periodically thereafter, in accordance with time frames to be established by the COP. Parties should, to the extent possible and taking into account data availability, provide time series of inventory information from 1994 or 1990 up to the most recent year reported.

B. Methodologies

11. Parties should use the *Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories*, hereinafter referred to as the IPCC Guidelines, for estimating and reporting their national GHG inventories.

12. In accordance with the IPCC Guidelines, Parties may use different methods (tiers) included in the Guidelines, giving priority to those methods which are believed to produce the most accurate estimates, depending on national circumstances and the availability of data. Parties can also use national methodologies where they consider these to be better able to reflect their national situation, provided that these methodologies are accessible to the international community.

13. The IPCC Guidelines offer a default methodology which includes default emission factors and in some cases default activity data. As these default factors, data and assumptions may not always be appropriate for specific national circumstances, it is preferable that Parties use their country-specific emission factors and activity data, provided that these have been developed in a scientifically sound manner, are considered to be reliable and are documented transparently.

14. Parties are encouraged, as appropriate and to the extent possible, to apply the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC Good Practice Guidance), taking into account the need to improve transparency, consistency, comparability, completeness and accuracy in inventories. In so doing, Parties could consider:

(a) Identifying key source categories as described in the IPCC Good Practice Guidance;

(b) Implementing quality assurance and quality control (QA/QC) procedures;

(c) Archiving all relevant inventory information;

(d) Estimating uncertainties, including quantitative information, where available.

C. Reporting

Institutional arrangements

15. Parties are encouraged to describe procedures followed and arrangements made to collect and archive data for the preparation of national GHG inventories, as well as efforts undertaken to make this a continuous process, including information on the role of the institutions involved.

Estimates of emissions and removals

16. Each Party shall provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) emissions by sources and removals by sinks.

17. Parties should, to the extent possible, report on other gases such as carbon monoxide (CO), nitrogen oxides (NO_X), and non-methane volatile organic compounds (NMVOCs). Parties are encouraged to provide information on sulphur oxides (SO_x).

18. Parties are encouraged, to the extent possible, to provide information on hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

19. Parties are encouraged, to the extent possible, to estimate and report CO_2 fuel combustion emissions using both the sectoral and the reference approach, and to explain any large differences between the two approaches.

20. Parties should report emissions from international aviation and marine bunker fuels as two separate entries in their inventories. Emission estimates from these sources should not be included in the national totals.

21. Parties wishing to report on GHG emissions and removals expressed in CO_2 equivalents should use the global warming potentials (GWP) provided by the IPCC in its Second Assessment Report ("1995 IPCC GWP Values") based on the effects of GHGs over a 100-year time horizon.

22. Parties should provide information on methodologies used in estimating GHG emissions and removals, including a brief explanation of the sources of emission factors and activity data. If Parties estimate emissions and removals from country-specific sources and/or sinks which are not specified in the IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, emission factors and activity data used in their estimation of emissions, as appropriate.

Tables

23. Each Party shall use tables 1 and 2 of these guidelines in reporting its national GHG inventory, taking into account the provisions established in paragraphs 16 to 18 above. In preparing those tables, Parties should strive to present information which is as complete as possible Where numerical data are not provided, Parties should use the notation keys as indicated.

24 Parties are encouraged to include in their national communications the inventory sectoral tables and worksheets[1] of the IPCC, where applicable, as an appendix to the national GHG inventory section, in both electronic and hard copy format.[2]

Uncertainties

25. Parties are encouraged to provide information on the level of uncertainty associated with the inventory data and their underlying assumptions. Parties are encouraged to provide, to the extent possible, quantitative information on uncertainties, where this is available, and to indicate the methodologies used for estimating these uncertainties.[3]

Key sources

26. Parties are encouraged to provide, to the extent possible, information on any key source analysis as indicated in the IPCC Good Practice Guidance.

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[1] The IPCC software (see http.//www.ipcc-nggip.iges.or.jp/public/gl/software.htm) provides for automated reporting in the worksheets, as well as in the sectoral and summary tables.

[2] An electronic version of the tables or worksheets facilitates processing of the inventory data.

[3] The IPCC Guidelines and the IPCC Good Practice Guidance provide methodologies for estimating uncertainties.

V. PROGRAMMES CONTAINING MEASURES TO FACILITATE ADEQUATE ADAPTATION TO CLIMATE CHANGE

27. Each Party shall, in accordance with Article 4, paragraph 1 (b), (e) and (j), and Article 12, paragraph 1 (b) and (c) of the Convention, provide to the COP information on the general description of steps taken or envisaged towards formulating, implementing, publishing and regularly updating national and, where appropriate, regional programmes containing measures to facilitate adequate adaptation to climate change, and any other information they consider to be relevant to the achievement of the objective of the Convention and suitable for inclusion in their communications.

28. Parties should provide information on their vulnerability to the adverse effects of climate change, including climate variability and extreme weather events, and on measures being taken to meet their specific needs and concerns arising from these adverse effects.

A. Methodological approaches

29. Parties should, to the extent that their financial resources and capacities allow, use approaches and/or best practices to assess their vulnerability and adaptation[4] to climate change, as appropriate, and focus on policy options which could be integrated into national planning processes for sustainable development. Parties are encouraged to use traditional knowledge-based approaches and practices in assessing their vulnerability and adaptation to climate change.

30 Parties should use methodologies contained in the following technical guidelines, as appropriate, for assessing their vulnerability and adaptation to climate change: the *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations* (Carter et al. 1994), the *UNEP Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies* (Feenstra et al. 1998), the *International Handbook on Vulnerability and Adaptation Assessments* (Benioff et al. 1996); or any other methodologies they consider better able to reflect their national situation, provided that these methodologies are accessible to the international community, including the IPCC

31. Parties should use, as appropriate, methodologies for the evaluation of adaptation strategies and measures contained in the *Compendium of Decision Tools to Evaluate Strategies for Adaptation to Climate Change*, which is available from the UNFCCC web site, www.unfccc.int/issues/meth_tools.html. They should also use other methodologies where they consider these to be better able to reflect their national situation, provided that these methodologies are accessible to the international community, including the IPCC.

B. Sectors/areas/processes

32 Taking into account their national circumstances and priorities for sustainable development, Parties should focus their assessment of vulnerability and adaptation on any number of sectors/areas/processes such as, but not limited to agriculture, energy, fisheries, forests, human health, human settlement, industry, tourism, water resources, coastal zones, wetlands and other ecosystems, rangelands and livestock, biodiversity, desertification and land degradation.

C. Reporting

33. Information on vulnerability, and on strategies and measures for adapting to climate change, should be provided under the following headings, as appropriate.

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[4] Parties may use the guidance, methodologies and approaches provided in the adaptation policy framework, which is currently being developed by the United Nations Development Programme in collaboration with non-Annex I Parties

Scope

34. Parties should provide information on the scope of their vulnerability and adaptation assessment, including identification of vulnerable sectors/areas/processes that are most critical.

Methodologies

35. Parties should include a description of methodologies, tools and approaches used, including scenarios for the assessment of impacts of, and vulnerability and adaptation to, climate change, as well as any uncertainties inherent in these methodologies.

Vulnerability and adaptation to climate change

36. Parties should provide information on their vulnerability to the impacts of, and their adaptation to, climate change in key vulnerable sectors/areas/processes. Information should include key findings, and direct and indirect effects arising from climate change, allowing for an integrated analysis of the country's vulnerability to climate change. In so doing, Parties should consider:

(a) Impacts of climate variability and extreme weather events;

(b) Sectors and population groups most affected;

(c) Stakeholders, including decision makers, in the management of adverse effects of climate change;

(d) Current capacities in weather forecasting, early warning systems and disaster preparedness and rehabilitation, including, as appropriate, financial, technological, institutional, legal and managerial capabilities.

Adaptation strategies and measures

37. Parties should provide information on and, to the extent possible, an evaluation of, adaptation strategies and measures for adapting to climate change, based on the assessment of vulnerability and adaptation to climate change in key sectors/areas/processes.

38. Parties should provide information on those adaptation strategies and measures for adapting to climate change which are of the highest priority, as well as those which improve their ability to cope with the impacts of climate change, including climate variability and extreme events (adaptive capacity).

39. Parties should report on the use, where relevant, of policy frameworks, such as national adaptation programmes, plans and policies for developing and implementing adaptation strategies and measures, such as the national adaptation programmes of action (NAPA) for the least developed countries.[5]

40. Parties should include information on opportunities for the implementation of adaptation measures, including pilot and/or demonstration adaptation projects being undertaken or proposed. They should also provide information on barriers to the implementation of adaptation measures.

41. Parties should include, as appropriate, information on national, subregional and/or regional capacity-building activities for integrating adaptation to climate change into medium and long-term planning

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[5] Decision 28/CP 7 indicates that information contained in national adaptation programmes of action may constitute the first step in the preparation of initial national communications

42. Parties should include, as appropriate, information on how support programmes from Parties included in Annex II to the Convention are meeting their specific needs and concerns relating to vulnerability and adaptation to climate change.

VI. PROGRAMMES CONTAINING MEASURES TO MITIGATE CLIMATE CHANGE

43 Each Party shall, in accordance with Article 4, paragraph 1 (b) and (j) and paragraph 7, and Article 12, paragraphs 1 (b) and (c), of the Convention, provide to the COP information on the general description of steps taken or envisaged for formulating, implementing, publishing and regularly updating national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, and any other information they consider to be relevant to the achievement of the objective of the Convention and suitable for inclusion in their communications.

A. Methodological approach

44. Based on national circumstances, Parties are encouraged to use whatever methods are available and appropriate in order to formulate and prioritize programmes containing measures to mitigate climate change; this should be done within the framework of sustainable development objectives, which should include social, economic and environmental factors.

45. In their assessment of these programmes on various sectors of the economy such as energy, transport, industrial processes, forestry, agriculture and waste, Parties may find the following technical resources helpful: *Technologies, Policies and Measures for Mitigating Climate Change (IPCC Technical Paper I); Greenhouse Gas Mitigation Assessment: A Guidebook by the United States Country Studies Program, Climate Change 2001: Mitigation (Contribution of Working Group III to the Third Assessment Report of the IPCC).*

B. Reporting

46. Based on national circumstances, Parties are encouraged to provide, to the extent their capacities allow, information on programmes containing measures which they believe contribute to mitigating climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, including, as appropriate, information by sectors on methodologies, scenarios, results, measures and institutional arrangements.

47. Parties are encouraged to include, to the extent their capacities allow, a list of proposed projects for financing, in accordance with Article 12, paragraphs 4 and 7, of the Convention.

VII. DEVELOPMENT AND TRANSFER OF TECHNOLOGIES

48. Pursuant to decision 4/CP.7, its annex, and the implementation of Article 4, paragraph 5, of the Convention, Parties are encouraged, in the light of their social and economic conditions, to provide information on:

(a) Country-specific technology needs;

(b) Transfer of, and access to, environmentally sound technologies and know-how and the development and enhancement of endogenous capacities, technologies and know-how;

(c) Assistance received from developed country Parties and the financial mechanism of the Convention and, as appropriate, its utilization, in support of the development and enhancement of endogenous capacities, technologies and know-how, and in the implementation of programmes and measures identified in the technology needs assessment.

VIII. RESEARCH AND SYSTEMATIC OBSERVATION

49 Parties should provide information on climate change research and systematic observation, including their participation in and contribution to activities and programmes, as appropriate, of national, regional and global research networks and observing systems.

50. Parties are encouraged to provide, as appropriate, information on their national programmes for meteorological, hydrological and climatic observations, including programmes for monitoring GHG concentrations, sea levels, desertification, ecosystem quality, and other indicators of climate change.

Research

51. Parties should include information on scientific research relating specifically to the assessment of impacts of, and adaptation to, climate change, including, as appropriate, modelling and prediction, as well as effects of the El Niño Southern Oscillation (ENSO) phenomenon on climate variability and extreme weather events.

52. Parties are encouraged to provide information on research relating to programmes containing measures to mitigate climate change, to programmes containing measures to facilitate adequate adaptation to climate change, and to the development of emission factors and activity data.

Systematic observation

53. Parties should provide, to the extent that their capacities allow, information on their participation in national, regional and global observing systems (such as the Global Climate Observing System, Global Terrestrial Observing System and Global Ocean Observing System).

54. Parties are encouraged to use the UNFCCC reporting guidelines on global climate change observing systems [6]

IX. EDUCATION, TRAINING AND PUBLIC AWARENESS

55. Parties should provide, to the extent possible, and as appropriate, the following information on activities relating to climate change education, training and public awareness at national and/or, where appropriate, subregional and regional levels. In providing this information, Parties are encouraged to consider·

(a) Institutions and/or programmes, expertise and resources, including information centres, for climate change education, training and public awareness;

(b) Scholarship and/or fellowship programmes for climate change;

(c) Incorporation of climate change issues into non-formal education and into the curricula of different levels of formal education systems;

(d) Focus and scope of education, training and public awareness programmes on climate change.

X. INFORMATION AND NETWORKING

56. Parties should provide information on their efforts to promote information sharing among and within countries and regions. Information could include the following, as appropriate:

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[6] FCCC/CP/1999/7

(a) Participation in and contribution to networks providing information, data, tools and expertise necessary for the preparation of national communications and implementation of programmes and activities identified in the national communications;

(b) Access to, and use of, information technologies for information exchange;

(c) Availability of resources and training,

(d) A list of national experts, including details of their expertise, who have participated in the preparation of national communications.

XI. CAPACITY-BUILDING

57. Parties should provide, in accordance with decision 2/CP.7, information on how capacity-building activities, as contained in the framework annexed to that decision, are being implemented at national and, where appropriate, at subregional and/or regional levels. This could include, inter alia, options and priorities for capacity-building, participation in and promotion of South-South cooperation, the involvement of stakeholders in capacity-building, coordination and sustainability of capacity-building activities, and the dissemination and sharing of information on capacity-building activities.[7]

58. Parties are encouraged to provide information on relevant needs and/or areas for capacity-building other than those mentioned in paragraph 57 above.

59 Parties should provide information on their capacity-building needs relating to research and systematic observation, and on how these needs are being met and supported by bilateral and multilateral activities and programmes.

XII. CONSTRAINTS AND GAPS, AND RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS

60. Parties should, in accordance with national circumstances and development priorities, describe any constraints and gaps, and related financial, technical and capacity needs, as well as proposed and/or implemented activities for overcoming the gaps and constraints associated with the implementation of activities, measures and programmes envisaged under the Convention, and with the preparation and improvement of national communications on a continuous basis, in the areas of:

(a) National GHG inventories, such as lack of national capacities for undertaking national GHG inventories on a continuous basis, or existing methodological and data gaps;

(b) Vulnerability and adaptation assessments, such as data constraints, limitations of the methodologies, models or scenarios,

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[7] In accordance with the annex to decision 2/CP 7, the initial scope of needs and areas for capacity-building covers: institutional capacity-building, including the strengthening or establishing, as appropriate, of national climate change secretariats or national focal points; enhancement and/or creation of an enabling environment; national communications; national climate change programmes; GHG inventories, emissions database management and systems for collecting, managing and utilizing emission factors and activity data; vulnerability and adaptation assessment; implementation of adaptation measures; assessment of mitigation options; research and systematic observation, including meteorological, hydrological and climatological services; development and transfer of technology; improved decision-making, including assistance for participation in international negotiations; clean development mechanism; implementation of Article 4, paragraphs 8 and 9, of the Convention; education, training and public awareness; and information and networking, including the setting up of databases

(c) Programmes containing measures to facilitate adequate adaptation to climate change, such as the identification, development, evaluation and implementation of adaptation measures,

(d) Programmes containing measures to mitigate climate change;

(e) Development and transfer of technologies, such as difficulties encountered in technology needs assessments and technology information, barriers to technology transfer and implementation, or development and enhancement of endogenous capacities and technologies;

(f) Research and systematic observation, such as data constraints or a lack of equipment;

(g) Education, training and public awareness;

(h) Information and networking, such as opportunities for, and barriers to, free and open exchange of data and information;

(i) Capacity-building.

61. Parties should provide information on all financial resources and technical support for the preparation of their national communications provided by themselves, as well as those received from the Global Environment Facility (GEF), Annex II Parties or bilateral and multilateral institutions.

62. Parties should also provide information on financial resources and technical support provided by the GEF, and where possible from other sources, including the Parties themselves, for other climate change related activities.

XIII. SUBMISSION

63. The information provided in accordance with these guidelines shall be communicated by each Party to the COP in a single document, with an executive summary outlining the information contained in the full document, in both hard copy and electronic format.

64. Each Party shall submit its national communication in one of the official languages of the United Nations. The executive summary, which is to be of no more than 10 pages, shall be translated into English and distributed widely. Parties are also encouraged to submit, to the extent possible and where relevant, English translations of their communications.

65. Additional or supporting information may be supplied through other documents such as a technical annex.

Table 1. National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol[a] and greenhouse gas precursors

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	CO_2 emissions (Gg)	CO_2 removals (Gg)	CH_4 (Gg)	N_2O (Gg)	CO[b] (Gg)	NO_x[b] (Gg)	NMVOCs[b] (Gg)	SO_x[b] (Gg)
Total national emissions and removals	X	X	X	X	X	X	X	X
1. Energy	X	X	X	X	X	X	X	X
A. Fuel combustion (sectoral approach)	X		X	X	X	X	X	X
1. Energy industries	X		X	X	X	X	X	X
2 Manufacturing industries and construction	X		X	X	X	X	X	X
3. Transport	X		X	X	X	X	X	X
4. Other sectors	X		X	X	X	X	X	X
5. Other (please specify)	X		X	X	X	X	X	X
B. Fugitive emissions from fuels	X		X		X	X	X	X
1. Solid fuels			X		X	X	X	X
2. Oil and natural gas			X		X	X	X	X
2. Industrial processes	X	X	X	X	X	X	X	X
A. Mineral products	X				X	X	X	X
B. Chemical industry	X		X	X	X	X	X	X
C. Metal production	X		X	X	X	X	X	X
D. Other production	X				X	X	X	X
E Production of halocarbons and sulphur hexafluoride								
F Consumption of halocarbons and sulphur hexafluoride								
G. Other (please specify)	X		X	X	X	X	X	X
3. Solvent and other product use	X			X			X	
4. Agriculture			X	X	X	X	X	X
A. Enteric fermentation			X					
B. Manure management			X	X			X	
C. Rice cultivation			X				X	
D. Agricultural soils			X	X			X	
E. Prescribed burning of savannahs			X	X	X	X	X	
F. Field burning of agricultural residues			X	X	X	X	X	
G. Other (please specify)			X	X	X	X	X	
5. Land-use change and forestry	X[c]	X[c]	X	X	X	X	X	X
A Changes in forest and other woody biomass stocks	X[c]	X[c]						
B. Forest and grassland conversion	X	X	X	X	X	X		
C. Abandonment of managed lands		X						
D CO_2 emissions and removals from soil	X[c]	X[c]						
E. Other (please specify)	X	X	X	X	X	X		
6. Waste			X	X	X	X	X	X
A. Solid waste disposal on land			X		X		X	
B. Waste-water handling			X	X	X	X	X	
C. Waste incineration					X	X	X	X
D. Other (please specify)			X	X	X	X	X	X
7. Other (please specify)	X	X	X	X	X	X	X	X
Memo items								
International bunkers	X		X	X	X	X	X	X
Aviation	X		X	X	X	X	X	X
Marine	X		X	X	X	X	X	X
CO_2 emissions from biomass	X							

Notes: Shaded cells do not require entries

[a] The following standard indicators may be used, as appropriate, for emissions by sources and removals by sinks of GHGs: **NO** (not occurring) for a gas or source/sink category which does not occur within a country, **NE** (not estimated) for existing emissions and removals which have not been estimated, **NA** (not applicable) for activities in a given source/sink category which do not result in emissions or removals of a specific gas, **IE** (included elsewhere) for emissions and removals estimated but included elsewhere in the inventory (Parties should indicate where the emissions or removals have been included), **C** (confidential) for emissions and removals which could lead to the disclosure of confidential information

[b] Data on CO, NO_X, NMVOCs and SO_X to be provided to the extent possible (see paragraph 17 above)

[c] Do not provide an estimate of both CO_2 emissions and CO_2 removals "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate Note that for the purposes of reporting, the signs for removals are always (-) and for emissions (+)

Table 2. National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6

GREENHOUSE GAS SOURCE AND SINK CATEGORIES	HFCs[a,b] (Gg)			PFCs[a,b] (Gg)			SF_6[a] (Gg)
	HFC-23	*HFC-134*	*Other (to be added)*	*CF_4*	*C_2F_6*	*Other (to be added)*	
Total national emissions and removals	X	X	X	X	X	X	X
1. Energy							
A. Fuel combustion (sectoral approach)							
1. Energy industries							
2. Manufacturing industries and construction							
3. Transport							
4. Other sectors							
5. Other (please specify)							
B. Fugitive emissions from fuels							
1. Solid fuels							
2. Oil and natural gas							
2. Industrial processes	X	X	X	X	X	X	X
A. Mineral products							
B. Chemical industry							
C. Metal production	X	X	X	X	X	X	X
D. Other production							
E. Production of halocarbons and sulphur hexafluoride	X	X	X	X	X	X	X
F Consumption of halocarbons and sulphur hexafluoride	X	X	X	X	X	X	X
G. Other (please specify)							
3. Solvent and other product use							
4. Agriculture							
A. Enteric fermentation							
B. Manure management							
C. Rice cultivation							
D. Agricultural soils							
E. Prescribed burning of savannahs							
F. Field burning of agricultural residues							
G. Other (please specify)							
5. Land-use change and forestry							
A. Changes in forest and other woody biomass stocks							
B. Forest and grassland conversion							
C. Abandonment of managed lands							
D. CO_2 emissions and removals from soil							
E. Other (please specify)							
6. Waste							
A. Solid waste disposal on land							
B. Waste-water handling							
C. Waste incineration							
D. Other (please specify)							
7. Other (please specify)	X	X	X	X	X	X	X
Memo items							
International bunkers							
Aviation							
Marine							
CO_2 emissions from biomass							

[a] Parties may wish to express HFC, PFC and SF_6 emissions as either potential or actual Potential emissions should be estimated using the tier 1 approach of the IPCC Guidelines Actual emissions should be estimated using the tier 2 approach of the IPCC Guidelines

[b] Parties reporting HFCs and PFCs should provide emission estimates on a gas-by-gas basis, that is, disaggregated estimates by chemical expressed in units of mass (Gg), as indicated in the table (e g HFC-23), where information is available This should be done by inserting a column for each HFC and PFC gas for which emissions do occur in the country The gases in the column headings are given as examples only Other gases to be reported in this table include HFC-32, HFC-41, HFC-43-10, HFC-125, HFC-134a, HFC-152a, HFC-43-10mee, HFC-143a, HFC-227ea, HFC-236fa, HFC-245ca, C_3F_8, C_4F_{10}, c-C_4F_8, C_5F_{12}, C_6F_{14}, and any other GHG with high global warming potential not covered in this list

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